

What is claimed is:

1        1. An electrode array structure in a pixel area of an  
2 in-plane switching mode LCD (IPS-LCD), comprising:

3        a comb-shaped common electrode having a bar extending  
4 transversely and a plurality of rectangular teeth extending  
5 in a first lengthwise direction from the bar; and

6        a comb-shaped pixel electrode having a bar extending  
7 transversely and a plurality of teeth extending in a second  
8 lengthwise direction from the bar, wherein each tooth has a  
9 continuous  $\angle$ -shaped sidewall and parallel is disposed  
10 between adjacent teeth of the common electrode.

1        2. The electrode array structure according to claim 1,  
2 wherein each tooth of the pixel electrode is formed by  
3 lengthwise linking of a plurality of trapezoids.

1        3. The electrode array structure according to claim 2,  
2 wherein the short-based length  $D_1$  and the long-based length  
3  $D_2$  of the trapezoid satisfy the formula  $D_2 \leq |D_1 \pm 50\mu\text{m}|$ ,  
4 excluding the case that  $D_2 = D_1$ .

1        4. The electrode array structure according to claim 2,  
2 wherein two adjacent trapezoids are connected by a  
3 rectangular strip.

1        5. The electrode array structure according to claim 1,  
2 wherein each tooth of the pixel electrode is formed by  
3 lengthwise linking of a plurality of inverted trapezoids.

1        6. The electrode array structure according to claim 5,  
2 wherein the short-based length  $D_1$  and the long-based length  
3  $D_2$  of the inverted trapezoid satisfy the formula  $D_2 \leq |D_1 \pm 50\mu\text{m}|$ ,  
4 excluding the case that  $D_2 = D_1$ .

1        7. The electrode array structure according to claim 5,  
2 wherein two adjacent inverted trapezoids are connected by a  
3 rectangular strip.

1        8. The electrode array structure according to claim 1,  
2 wherein each tooth of the pixel electrode is indium tin oxide  
3 (ITO).

1        9. The electrode array structure according to claim 1,  
2 wherein each tooth of the pixel electrode comprises:  
3 a first electrode layer having a rectangular profile;  
4 a second electrode layer disposed over the first electrode  
5 layer and having a continuous  $\angle$ -shaped sidewall; and  
6 a protection layer sandwiched between the first electrode  
7 layer and the second electrode layer.

1        10. The electrode array structure according to claim 9,  
2 wherein the second electrode layer is indium tin oxide (ITO).

1        11. The electrode array structure according to claim 1,  
2 wherein each tooth of the pixel electrode comprises:  
3 a first electrode layer having a continuous  $\angle$ -shaped  
4 sidewall;  
5 a second electrode layer disposed over the first electrode  
6 layer and having a rectangular profile; and

7 a protection layer sandwiched between the first electrode  
8 layer and the second electrode layer.

1 12. The electrode array structure according to claim 11,  
2 wherein the second electrode layer is indium tin oxide (ITO).

1 13. An electrode array structure in a pixel area of an  
2 in-plane switching mode LCD (IPS-LCD), comprising:

3 a comb-shaped common electrode having a bar extending  
4 transversely and a plurality of teeth extending in a first  
5 lengthwise direction from the bar, wherein each tooth of the  
6 common electrode has a continuous  $\angle$ -shaped sidewall; and

7 a comb-shaped pixel electrode having a bar extending  
8 transversely and a plurality of rectangular-shaped teeth  
9 extending in a second lengthwise direction from the bar,  
10 wherein each tooth of the pixel electrode parallel is disposed  
11 between adjacent teeth of the common electrode.

1 14. The electrode array structure according to claim 13,  
2 wherein each tooth of the common electrode is formed by  
3 lengthwise linking of a plurality of trapezoids.

1 15. The electrode array structure according to claim 14,  
2 wherein the short-based length  $D_1$  and the long-based length  
3  $D_2$  of the trapezoid satisfy the formula  $D_2 \leq |D_1 \pm 50\mu\text{m}|$  ,  
4 excluding the case that  $D_2 = D_1$  .

1 16. The electrode array structure according to claim 14,  
2 wherein two adjacent trapezoids are connected by a  
3 rectangular strip.

1 17. The electrode array structure according to claim 13,  
2 wherein each tooth of the common electrode is formed by  
3 lengthwise linking of a plurality of inverted trapezoids.

1 18. The electrode array structure according to claim 17,  
2 wherein the short-based length  $D_1$  and the long-based length  
3  $D_2$  of the inverted trapezoid satisfy the formula  $D_2 < |D_1 \pm 50\mu\text{m}|$ ,  
4 excluding the case that  $D_2 = D_1$ .

1 19. The electrode array structure according to claim 17,  
2 wherein two adjacent inverted trapezoids are connected by a  
3 rectangular strip.

1 20. The electrode array structure according to claim 13,  
2 wherein each tooth of the common electrode is indium tin oxide  
3 (ITO).

1 21. The electrode array structure according to claim 13,  
2 wherein each tooth of the common electrode comprises:  
3 a first electrode layer having a rectangular profile;  
4 a second electrode layer disposed over the first electrode  
5 layer and having a continuous  $\angle$ -shaped sidewall; and  
6 a protection layer sandwiched between the first electrode  
7 layer and the second electrode layer.

1 22. The electrode array structure according to claim 21,  
2 wherein the second electrode layer is indium tin oxide (ITO).

1 23. The electrode array structure according to claim 13,  
2 wherein each tooth of the common electrode comprises:

3 a first electrode layer having continuous  $\angle$ -shaped  
4 sidewall;  
5 a second electrode layer disposed over the first electrode  
6 layer and having a rectangular profile; and  
7 a protection layer sandwiched between the first electrode  
8 layer and the second electrode layer.

1 24. The electrode array structure according to claim 23,  
2 wherein the second electrode layer is indium tin oxide (ITO).

1 25. An electrode array structure in a pixel area of an  
2 in-plane switching mode LCD (IPS-LCD), comprising:

3 a comb-shaped common electrode having a bar extending  
4 transversely and a plurality of teeth extending in a first  
5 lengthwise direction from the bar, wherein each tooth of the  
6 common electrode has a continuous  $\angle$ -shaped sidewall; and

7 a comb-shaped pixel electrode having a bar extending  
8 transversely and a plurality of teeth extending in a second  
9 lengthwise direction from the bar, wherein each tooth has a  
10 continuous  $\angle$ -shaped sidewall and parallel is disposed  
11 between adjacent teeth of the common electrode.

1 26. The electrode array structure according to claim 25,  
2 wherein each tooth of the common electrode is formed by  
3 lengthwise linking of a plurality of trapezoids, and each  
4 tooth of the pixel electrode is formed by lengthwise linking  
5 of a plurality of inverted trapezoids.

1 27. The electrode array structure according to claim 26,  
2 wherein the short-based length  $D_1$  and the long-based length

3  $D_2$  of the trapezoid satisfy the formula  $D_2 \leq |D_1 \pm 50\mu\text{m}|$ ,  
4 excluding the case that  $D_2 = D_1$ .

1 28. The electrode array structure according to claim 25,  
2 wherein two adjacent trapezoids are connected by a  
3 rectangular strip, and two adjacent inverted trapezoids are  
4 connected by a rectangular strip.

1 29. The electrode array structure according to claim 25,  
2 wherein each tooth of the common electrode is formed by  
3 lengthwise linking of a plurality of inverted trapezoids, and  
4 each tooth of the pixel electrode is formed by lengthwise  
5 linking of a plurality of trapezoids.

1 30. The electrode array structure according to claim 29,  
2 wherein the short-based length  $D_1$  and the long-based length  
3  $D_2$  of the trapezoid satisfy the formula  $D_2 \leq |D_1 \pm 50\mu\text{m}|$ ,  
4 excluding the case that  $D_2 = D_1$ .

1 31. The electrode array structure according to claim 29,  
2 wherein two adjacent trapezoids are connected by a  
3 rectangular strip, and two adjacent inverted trapezoids are  
4 connected by a rectangular strip.

1 32. The electrode array structure according to claim 25,  
2 wherein each tooth of the common electrode is indium tin oxide  
3 (ITO).

1 33. The electrode array structure according to claim 25,  
2 wherein each tooth of the pixel electrode is indium tin oxide

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3 (ITO) .

| Year | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
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| 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |      |